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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,784	06/25/2001	Emanuel Beer	10732-0009-999	1504

32588 7590 12/05/2002

APPLIED MATERIALS, INC.  
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SANTA CLARA, CA 95050

EXAMINER
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MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 12/05/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/891,784

Applicant(s)

BEER ET AL.

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-21 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06/25/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1763

## DETAILED ACTION

### *Claim Objections*

1. Claims 13 objected to because of the following informalities: The claim contains extra words-- "...said a high temperature". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Applicant claims "said heating element comprises a heater in a metal shape". Although Examiner is not completely sure what Applicant intends to claim, the claim has interpreted to mean that the heater is inside of/surrounded by a metal shape. Clarification is requested.

### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-4, 12-13, 16, 19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,980,991 to Sakamoto et al.
7. Sakamoto et al. disclose an apparatus (Figures 10 and 14d) through which a substrate (62) is transferred between a first chamber (110) and a second chamber (114), wherein the first chamber is maintained at a high temperature relative to a temperature maintained within said second chamber, said

Art Unit: 1763

second chamber including a port; said apparatus comprising: a passageway for receiving said substrate ; and a thermally isolating interface (112) that reduces heat transfer from said first chamber to said second chamber, said thermally isolating interface having a face (multiple part numbers; 190, 192, 194, 196) with a border (190, 192, 196) disposed on said face, the border defining a hole in said thermally isolating interface having dimensions such that said substrate is transferable through said thermally isolating interface.

8. With respect to claims 3-4, Sakamoto disclose that said thermally isolating interface is composed of a material—refractory glass (column 22, row 53 through column 23, row 21; column 25, rows 53-57), having a thermal conductivity coefficient less than that of aluminum, where the thermal conductivity coefficient of aluminum is approximately 1536 Btu inch/(hr)(ft<sup>2</sup>)(deg F).

9. With respect to claim 12, said high temperature range is in a range between about 250 deg C and 625 deg C (column 12, rows 40-44).

10. With respect to claims 13 and 16, said passageway further comprises a heating element (column 22, rows 22-24) for maintaining said apparatus at a temperature that is proximate a high temperature. Further said passageway further comprises a heat distribution mechanism, air, for distributing heat generated by said heating element.

11. With respect to claim 19, said substrate is a semiconductor substrate or a glass substrate (column 16, rows 44-48).

12. With respect to claim 21, the combination of limitations recited is treated above.

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1763

35. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. as applied to claims 1, 3-4, 12-13, 16, 19 and 21 above, and further in view of U.S. Patent No. 5,294,572 to Granneman et al.

36. Sakamoto et al. disclose the invention substantially as claimed and as described above.

37. However, Sakamoto et al. fail to teach the first chamber as a high temperature chamber and the second chamber as a transfer chamber.

38. Granneman et al. teach the use of a heat isolating interface between a high temperature chamber and a transfer chamber (distribution chamber) for the purpose of ensuring that only a minimum of heat flow is able to reach the transfer chamber (column 2, row 63 through column 3, row 38).

39. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a heat isolating interface between a high temperature chamber and a transfer chamber in Sakamoto et al. in order to ensure that only a minimum of heat flow is able to reach a transfer chamber as taught by Granneman et al.

14. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,980,991 to Sakamoto et al.

15. Sakamoto et al. disclose the invention substantially as claimed and as described above.

16. However, Sakamoto et al. fail to teach the thermally isolating interface is made of stainless steel having a thermal conductivity coefficient of about 106 Btu inch/(hr)(ft<sup>2</sup>)(deg F).

17. However, Sakamoto et al. do teach the use of stainless steel having a thermal conductivity coefficient of about 106 Btu inch/(hr)(ft<sup>2</sup>)(deg F) as a construction material for the purpose of using a material with sufficiently high heat resistance (column 27, rows 53-59). Applicant uses the word "about" to describe the thermal conductivity coefficient. Any stainless steel would inherently have "about" the claimed value, therefore, Sakamoto et al. is applied although it does not specifically recite a specific value for the thermal conductivity coefficient of the stainless steel disclosed.

18. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to use a stainless steel having a thermal conductivity coefficient of about 106 Btu

Art Unit: 1763

inch/(hr)(ft<sup>2</sup>)(deg F) as a construction material for the thermally isolating interface, as used for other structures of the invention, in Sakamoto et al. in order to take advantage of the materials heat resistance properties as taught by Sakamoto et al.

19. Claims 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. as applied to claims 1, 3-4, 12-13, 16, 19 and 21 above, and further in view of U.S. Patent No. 3,866,926 to Traum.

20. Sakamoto et al. disclose the invention substantially as claimed and as described above.

21. However, Sakamoto fail to teach the face of the apparatus including a recess such that when said face abuts said port, a thermally isolating volume is defined within said recess. Nor, do Sakamoto et al. teach said thermally isolated volume occupied by a air, which has a thermal conductivity coefficient of less than 1200 Btu inch/(hr)(ft<sup>2</sup>)(deg F) or a cross section of said recess defined by a shape selected from the group consisting of sawtooth pattern, a repeating pattern, a curve and a polynomial equation.

22. Examiner notes that claim does not recite said recess has a cross sectional area with any of the shapes above, rather that the cross section is defined by any of the shapes above.

23. Traum teaches providing recesses (Figure 2, 22-25, second recess means) in a thermal isolating interface and occupying the volume created with air for the purpose of defining heat insulating cavities between two members (abstract and column 3, rows 16-24). Additionally, each of the recess cross sections is defined by a curve (see Figure 2).

24. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided recesses with an air occupying volume and a cross section defined by a curve in Sakamoto et al. in order to define heat insulating cavities as taught by Traum.

25. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. as applied to claims 1, 3-4, 12-13, 16, 19 and 21 above, and further in view of U.S. Patent No. 4,531,047 to Canfield et al.

26. Sakamoto et al. disclose the invention substantially as claimed and as described above.

Art Unit: 1763

27. However, Sakamoto fail to teach the heating element in said passageway comprising a heater in a metal shape or comprising a coil wrapped around a ceramic base.

28. Canfield et al. disclose a heating element comprising a heater in a metal shape (12) for the purpose of mounting the heater; a coil (5) wrapped about a ceramic base (6a) for the purpose of supporting the coil (column 2, rows 53-59); and a reflective parabolic surface (Figure 6) for the purpose of distributing heat generated by said heating element (column 2, rows 53-59).

29. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided any of the following in Sakamoto et al.: a heating element in a metal shape in order to mount the heater or a heating coil wrapped about a ceramic base in order to support the heating coil or a heating element with a reflective surface, as taught by Canfield et al.

30. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. and Canfield et al. as applied to claims 14-17 above, and further in view of Japanese Patent No. 01-082453 to Okubo et al.

31. Sakamoto et al. and Canfield et al. disclose the invention substantially as claimed and as described above.

32. However, the prior art fails to specifically disclose the reflecting surface as a mirror.

33. Okubo teaches the use of a reflecting parabolic mirror for the purpose of reflecting heat energy thereby improving lamp efficiency (purpose and constitution).

34. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a reflecting parabolic mirror in the prior art in order to reflect heat energy thereby improving lamp efficiency as taught by Okubo.

***Allowable Subject Matter***

35. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 1763

36. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach nor does it fairly suggest the recess of said apparatus (as recited in claims 1 and 7) being beveled.

**Conclusion**


37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km  
December 2, 2002

  
GREGORY MILLS  
SUPERVISOR PATENT EXAMINER  
TECHNOLOGY CENTER 1700